

Available online at www.sciencerepository.org

Science Repository



Short Communication

Neurological & Gastrointestinal Manifestations of Novel Corona Virus Disease 2019 (COVID-19): Radiologist Prospective

Shahmeer Khan^{1*}, Tanveer Ul Haq¹ and Ayesha Shoukat Hussain²

¹Department of Radiology, The Aga Khan University, Karachi, Pakistan

²Department of Pharmacology, Karachi Institute of Medical Sciences, Karachi, Pakistan

ARTICLE INFO

Article history:

Received: 30 November, 2020

Accepted: 9 January, 2021

Published: 23 January, 2021

Keywords:

COVID-19

gastrointestinal

neurological manifestations

ABSTRACT

Gastrointestinal and neurological symptoms can precede or be isolated manifestations of COVID-19 infection, therefore health care professionals must be aware of presentations, which can help in identification and appropriate isolation of such cases.

© 2020 Shahmeer Khan. Hosting by Science Repository.

Novel corona virus disease 2019 is a pandemic viral infection which is thought to have originated from Wuhan china [1]. It results in multisystem disorder through a hyperactivated inflammatory response in the body predominantly affecting the respiratory system with symptoms including but not limited to fever, cough, body aches, loss of smell and taste [2, 3]. There is a growing awareness that the virus affects nervous and gastrointestinal system [4, 5]. Possible explanation of the nervous system involvement includes the virus directly reaching the brain through olfactory roots in the nose versus CNS involvement secondary to septicemia following virus seedling the lungs [6]. Manifestations of CNS involvement include but not limited to stroke, impaired consciousness and skeletal muscle injury. Therefore, it is important to rule out COVID-19 as a possible cause for stroke without any explainable underlying cause in this era of pandemic [7]. In addition to these features the virus is also reported to have been associated with acute necrotizing hemorrhagic encephalopathy along with reports of meningitis / encephalitis involving the median temporal lobes [8, 9].

The published literature also alarms the gradual increase in number of patients with delirium, seizure and encephalitis like syndrome as the pandemic worsens and explains the disturbance in coagulation

mechanism caused by this virus as one of the main underlying causes for such manifestations [10]. The significance of the situation has resulted in publication of various guidelines which emphasize the front line health care workers at stroke triage to be aware of the virus as a possible cause for unexplainable stroke and advises them of various measures such as include CT cuts through chest alongside CT head in suspected cases, and if radiological features are suggestive of COVID-19 infection, proper isolation measures be undertaken. They also advise patient must not be shifted out to neurology ward until the polymerase chain reaction (PCR) test for COVID-19 turns out be negative [11].

Another well-known system affected by corona virus disease 2019 is the gastrointestinal system [4]. Previously published literature describes a series of cases where patients presented predominantly with abdominal pain and diarrhea without any respiratory symptoms of COVID-19 and abdominal radiologists were the first to identify pulmonary changes of the virus on sections through lung bases, therefore, stressing upon that fact that abdominal radiologists should vigilantly screen through lung bases to screen for any atypical findings [12]. Cases have been reported where patients have presented with exclusive gastrointestinal symptoms, however on imaging workup radiologist have been able to identify the typical peripheral ground glass changes suggestive of COVID-19

*Correspondence to: Dr. Shahmeer Khan, Department of Radiology, The Aga Khan University, Karachi, Pakistan; E-mail: shahmeer.khan@aku.edu

infection, resulting in identification of cases, subsequently these patients turned out to be positive on PCR testing [13, 14].

Therefore, it is highly imperative for radiologist to be aware of the multisystem involvement in COVID-19 infection, where neurological and gastrointestinal symptoms can precede respiratory manifestations. So, a careful and vigilant screening of these patients for pulmonary findings of COVID-19 infection that is patchy subpleural scattered ground glass densities can help identify cases, thereby allowing their isolation and hence prevent spread of the disease [15, 16].

REFERENCES

1. Mackenzie JS, Smith DW (2020) COVID-19: a novel zoonotic disease caused by a coronavirus from China: what we know and what we don't. *Microbiol Aust* 41: 45-50. [[Crossref](#)]
2. World Health organization (2020) Coronavirus.
3. Cascella M, Rajnik M, Cuomo A, Dulebohn SC, Di Napoli R (2020) Features, evaluation and treatment coronavirus (COVID-19). StatPearls Publishing.
4. Su S, Shen J, Zhu L, Qiu Y, He JS et al. (2020) Involvement of digestive system in COVID-19: manifestations, pathology, management and challenges. *Therap Adv Gastroenterol* 13: 1756284820934626. [[Crossref](#)]
5. Iadecola C, Anrather J, Kamel H (2020) Effects of COVID-19 on the nervous system. *Cell* 183: 16-27. [[Crossref](#)]
6. Jebri N (2020) Viral encephalitis associated with COVID-19: a review of the literature and two cases. *SSRN* 3573520.
7. Mao L, Jin H, Wang M, Hu Y, Chen S et al. (2020) Neurologic manifestations of hospitalized patients with coronavirus disease 2019 in Wuhan, China. *JAMA Neurol* 77: 683-690. [[Crossref](#)]
8. Poyiadji N, Shahin G, Noujaim D, Stone M, Patel S et al. (2020) COVID-19-associated acute hemorrhagic necrotizing encephalopathy: CT and MRI features. *Radiology* 31: 201187. [[Crossref](#)]
9. Moriguchi T, Harii N, Goto J, Harada D, Sugawara H et al. (2020) A first case of meningitis/encephalitis associated with SARS-Coronavirus-2. *Int J Infect Dis* 94: 55-58. [[Crossref](#)]
10. Talan J (2020) Neurologists in Italy to Colleagues in US: Look for Poorly-Defined Neurologic Conditions in Patients with COVID-19. *Neurol Today* 20: 1-20.
11. Jin H, Hong C, Chen S, Zhou Y, Wang Y et al. (2020) Consensus for prevention and management of coronavirus disease 2019 (COVID-19) for neurologists. *Stroke Vasc Neurol* 5: 146-151. [[Crossref](#)]
12. Siegel A, Chang PJ, Jarou ZJ, Paushter DM, Harmath CB et al. (2020) Lung base findings of coronavirus disease (COVID-19) on abdominal CT in patients with predominant gastrointestinal symptoms. *Am J Roentgenol* 215: 607-609. [[Crossref](#)]
13. Kim J, Thomsen T, Sell N, Goldsmith AJ (2020) Abdominal and testicular pain: An atypical presentation of COVID-19. *Am J Emerg Med* 38: 1542.e1-1542.e3. [[Crossref](#)]
14. Lorente E (2020) COVID-19 infection - exclusive gastrointestinal symptoms. *Radiopaedia*.
15. Cleverley J, Piper J, Jones MM (2020) The role of chest radiography in confirming covid-19 pneumonia. *BMJ* 370: m2426. [[Crossref](#)]
16. Bernheim A, Mei X, Huang M, Yang Y, Fayad ZA et al. (2020) Chest CT findings in coronavirus disease-19 (COVID-19): relationship to duration of infection. *Radiology* 295: 200463. [[Crossref](#)]